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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,725	10/17/2003	Takanori Takeda	4041K-000158	3286
27572	7590	12/19/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			LU, JIPING	
			ART UNIT	PAPER NUMBER
			3749	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/687,725

Applicant(s)

TAKEDA, TAKANORI

Examiner

Jiping Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration..
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 3, 4, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chartet (U. S. Pat. 3,756,489) in view of Marks et al. (U. S. pat. 5,660,543).

Chartet shows a controlled atmosphere furnace (Figs. 1-4) with a conveyor device 2 for continuously transporting flux coated articles 1 to be heated or brazed (col. 2, lines 5-11). The furnace includes a preheating chamber I, II and a heating or brazing chamber III. The article 1 conveyed through the preheating chamber I, II is quickly preheated by a combustion gas circulated in the preheating chamber in a closed-loop flow path (See Figs. 1-4). A gas burner 4, 4a which creates the combustion gas and a circulation fan 23 are provided in the closed-loop flow path for the combustion gas. The brazing chamber is filled with nitrogen (i.e. a non-oxygen atmosphere) (col. 3, lines 64-67). A tip nozzle (see Fig. 4, next to 33) of a circulation duct opens to a portion of the article required to be heated. However, Chartet does not disclose that atmosphere shutter chamber disposed forward and rearward of the brazing chamber and one of the atmosphere shutter chambers being disposed between the preheating chamber and the brazing chamber. Marks et al. teach a furnace for brazing workpieces with atmosphere shutter chamber (at 38) disposed forward and rearward of the brazing chamber 22 and between the preheating chamber 20 and the brazing chamber 22 (see Fig. 1) for preventing atmosphere gas in the brazing chamber 14 from escape. Therefore, it would have been obvious to one having ordinary

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skill in the art at the time the invention was made to modify the brazing furnace of Chartet to include atmosphere shutter chamber as taught by Marks et al. in order to prevent atmosphere gas in the brazing chamber from escape and therefore improve the brazing efficiency. With regard to claimed predetermined time and quick heating and conveyor speed control in claims 3 and 4, they are view as functional or intended use limitations. The limitations regarding predetermined time and quick heating and conveyor speed control do not add any structural limitation to the claim and Chartet discloses all the structural limitations. The gas burner and circulation fan and the conveyor speed of Chartet can be controlled in any manner as one desires.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chartet (U. S. Pat. 3,756,489) in view of Marks et al. (U. S. pat. 5,660,543) as applied to claim 1 above, and further in view of Sustarsic et al. (U. S. Pat. 3,984,289).

The furnace of Chartet as modified by Marks et al. as above includes all that is recited in claim 5 except for metallic curtains. Sustarsic et al. teach a coke quencher car apparatus with a plurality of metallic curtains 61a for closing the compartment opening. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the furnace of Sustarsic et al. to include metal curtains as taught by Sustarsic et al. in order to improve the furnace heat treatment efficiency.

4. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chartet (U. S. Pat. 3,756,489).

Chartet shows a method for heating a controlled atmosphere furnace used for preheating articles to be brazed. Articles 1 are continuously supplied to the atmospheric furnace prior to being brazed in a brazing chamber III. The article 1 is coated with a brazing flux (col. 2, lines 5-

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11 and claim 1, paragraph d) and is quickly preheated to a predetermined temperature with forcibly circulated combustion gas (col. 3, lines 5-12). The brazing chamber is filled with nitrogen (i.e. a non-oxygen atmosphere) (col. 3, lines 64-67). Chartet discloses the claimed invention except for the predetermined time. It would have been obvious to one having ordinary skill in the art at the time the invention was made to preheat the article at approximately five minutes in order to obtain the optimum preheating result since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

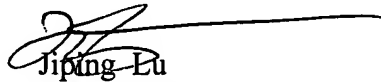
### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jiping Lu whose telephone number is 571 272 4878. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 571 272-4877. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jiping Lu  
Primary Examiner  
Art Unit 3749

J. L.